

REMARKS

Applicant has carefully reviewed the office action mailed August 22, 2006 and offers the following remarks to accompany the above amendments.

Claims 1-20 are pending in the present application. Claims 3 and 13 have been cancelled. Accordingly, claims 1, 2, 4-12, and 14-20 remain pending.

Claims 1, 2, 4-12, and 14-20 have been amended. As will be discussed in more detail below, no new matter has been added and no new search is required. The amendments are supported by the Application as originally filed.

The Specification was objected to for informalities. The specification has been amended to correct these informalities.

Figure 1 was objected to because it recited the reference designator "1B" twice and because it did not recite the reference designator "1C," as mentioned on page 5 of the Specification. Figure 1 has been amended and a replacement sheet for Figure 1 is attached hereto.

Applicant wishes to thank the Examiner for indicating that claims 8, 15-17, and 20 would be allowable if rewritten in independent form and if re-written or amended to overcome the rejections under 35 U.S.C. § 112, 2nd paragraph. Applicant has made amendments, as will be discussed below, to overcome the rejections under 35 U.S.C. § 112, second paragraph. Accordingly, Applicant respectfully submits that claims 8, 15-17, and 20 are in condition for allowance and notice of the same is respectfully requested at the earliest possible date.

The claims were objected to for informalities related to dependent claim numbering with reference to MPEP § 608.01(n). Applicant has amended the claims to overcome this objection.

Claims 1-20 were rejected as failing to define the invention in the manner required by 35 U.S.C. § 112, second paragraph. Specifically, the Patent Office opined that the claims are narrative in form and replete with indefinite and functional or operational language. Claims 1-20 have been amended to overcome the rejections under 35 U.S.C. § 112, second paragraph.

Claims 1, 6, and 14-16 were rejected under 35 U.S.C. § 101 because the claimed invention is directed to non-statutory subject matter. Claims 1, 6, and 14-16 have been amended to overcome the rejections under 35 U.S.C. § 101.

Prior to addressing the remaining rejections, Applicant offers a brief summary of the present invention to provide context to the arguments that follow. The present invention

provides a human subject with various forms of audible and visual cues, individually or in combination, at a nominal periodicity of 11.76 seconds divided by 2, or 5.88 seconds. This 5.88 second interval represents 50% of the typical 11.76 second heart rate variability cycle for a human. The heart rate variability cycle is a periodic increase and decrease in the heartbeat rate upon inhalation and exhalation, respectively. When the breathing is consciously synchronized to this external timing reference signal, the heart rate variability cycle will synchronize with the breathing cycle. This synchronization is termed, for purposes of the present invention, coherence of the heart rate variability cycle. By synchronizing the breathing cycle with the nominal 11.76 second period, coherence of the heart rate variability cycle may be achieved, thereby resulting in improved physiological and emotional harmony for the human subject.

Claims 1-6, 9, 13, and 19 were rejected under 35 U.S.C. § 102(b) as being anticipated by U.S. Patent No. 6,212,135 B1 to Schreiber (hereinafter “Schreiber”). Applicant respectfully traverses. For the Patent Office to prove anticipation, each and every element of the reference must be present in the reference. Furthermore, the elements of the reference must be arranged as claimed. MPEP § 2131.

Claim 1 has been amended to recite that a human perceptible indication is generated to identify inhalation phases and exhalation phases “relative to a period for a combination of the inhalation phases and exhalation phases having a center frequency of approximately 11.76 seconds, wherein the period having the center frequency of approximately 11.76 seconds represents a nominal heart rate variability cycle” This amendment is supported by the Application as originally filed. (See Specification, page 3, line 29 through page 4, line 3).

In contrast to the present invention, Schreiber teaches cueing a breathing cycle based upon an exhalation phase ranging from 10-40 seconds, followed by a pause ranging from 2-5 seconds, followed by an inhalation phase ranging from 10-30 seconds, followed by another pause ranging from 2-10 seconds. (See Schreiber, col. 8, lines 39-49). Accordingly, Schreiber teaches a breathing cycle with a minimum period of 24 seconds (e.g., 10 second exhale, 2 second pause, 10 second inhale, and 2 second pause). This 24 second minimum breathing cycle of Schreiber is completely different from Applicant’s claimed 11.76 second period and Schreiber does not anticipate claim 1. Additionally, Schreiber cannot possibly allow a human subject to “synchronize the breathing cycle with the heart rate variability cycle to achieve coherence of the heart rate variability cycle,” as required by claim 1, because a human subject cannot possibly

synchronize the breathing cycle with the heart rate variability cycle, as defined by Applicant, based upon a breathing cycle with a minimum period of 24 seconds. Additionally, Schreiber does not even appear to recognize that heart rate variability cycle exists and does not teach any attempt to align the breathing cycle with the heart rate variability cycle for any purpose.

Accordingly, Schreiber does not anticipate claim 1 and the rejection of claim 1 should be withdrawn for at least these reasons. Claims 2-6, 9, 13, and 19 depend from claim 1 and the rejection of these claims should also be withdrawn for at least the same reasons. Applicant respectfully submits that claims 1-6, 9, 13, and 19 are in condition for allowance and notice of the same is requested at the earliest possible date.

Claims 1, 3, 4, 6, and 13 were rejected under 35 U.S.C. § 102(b) as being anticipated by U.S. Patent No. 4,711,585 to Fresquez et al. (hereinafter “Fresquez”). Applicant respectfully traverses. The standards for anticipation are set forth above.

Based upon the amendments to claim 1 discussed above, Fresquez does not anticipate claim 1 either. Fresquez teaches a cueing aid for prenatal breathing control. The teachings of Fresquez are directed to assisting a woman in labor to ease delivery. Fresquez teaches several modes of operation. The first mode is “slow chest breathing.” During slow chest breathing, the subject is to align the breathing cycle to have a 2 second inhalation phase and a 3 second exhalation phase. (See Fresquez, col. 6, lines 23-32). This results in a 5 second period for the breathing cycle. As with Schreiber, this periodicity of the breathing cycle will not result in an alignment of the breathing cycle with the heart rate variability cycle and the period of the signals presented to the human subject for the breathing cycle are not based upon a center frequency of approximately 11.76 seconds, as required by claim 1.

The second and third modes of operation for Fresquez are “pant-blow breathing” and “accelerated chest breathing,” respectively. During pant-blow breathing, the inhalation phase of the breathing cycle is 1/4 of one second and the exhalation phase is 1/2 of one second, resulting in a period for the breathing cycle of 3/4 of one second. (See Fresquez, col. 6, lines 33-37). Again, this periodicity is very different from Applicant’s claimed periodicity having a center frequency of approximately 11.76 seconds. During accelerated chest breathing, the inhalation phase of the breathing cycle is 1/4 of one second followed by a first exhalation phase that is 1 second and a second exhalation phase of 2 seconds, resulting in a period for the breathing cycle of 3 and 1/4 seconds. (See Fresquez, col. 6, lines 41-46). Again, this periodicity is very different

from Applicant's claimed periodicity having a center frequency of approximately 11.76 seconds. Additionally, Fresquez does not even appear to recognize that heart rate variability exists and does not teach any attempt to align the breathing cycle with the heart rate variability cycle for any purpose.

Accordingly, Fresquez does not anticipate claim 1 and the rejection of claim 1 should be withdrawn for at least these reasons. Claims 3, 4, 6, and 13 depend from claim 1 and the rejection of these claims should also be withdrawn for at least the same reasons. Applicant respectfully submits that claims 1, 3, 4, 6, and 13 are in condition for allowance and notice of the same is requested at the earliest possible date.

Claims 1, 2, and 18 were rejected under 35 U.S.C. § 102(b) as being anticipated by UK Patent No. GB 2344288A to Bourne (hereinafter "Bourne"). Applicant respectfully traverses. The standards for anticipation are set forth above.

In contrast to Applicant's claim 1, Bourne teaches an approach for practicing what Bourne calls "colour breathing." (See Bourne, page 1, lines 2-3). Bourne indicates that "relaxation which can result from deep and regular breathing can be increased by concentrating the mind on a specific colour while breathing." (See Bourne, page 1, lines 11-12). Further, Bourne indicates that "[t]he same colour can be concentrated on during the breathing, or one colour can be concentrated on while breathing 'in' and a different colour concentrated on while breathing 'out'." (See Bourne, page 1, lines 13-16).

Accordingly, Bourne teaches the use of at most two colors during the "colour breathing." Bourne has no further indication of what colour breathing is except to say that the breathing is "deep and regular." (See Bourne, page 1, line 8). Bourne provides absolutely no teaching of what constitutes deep and regular breathing. However, when faced with the references made of record in the Office Action mailed August 22, 2006, one skilled in the art would be guided by Schreiber, which as discussed above, teaches a breathing cycle with a minimum period of 24 seconds. Additionally, U.S. Patent Application Publication No. 2002/0051958 A1 to Khalsa (hereinafter "Khalsa"), which is the basis of another rejection under 35 U.S.C. § 102(b), teaches a breathing cycle where the breath is held after inhale of at least 10 seconds, and in some of the examples, 10-30 seconds. (See Khalsa, Drawings sheet 14 of 43, Exercise 1; Drawings sheet 19 of 43, last paragraph; and Drawings, FIG. 8G, sheet 39 of 43, last paragraph prior to "Benefits" section). The breathing cycle of Khalsa most certainly includes an additional exhale phase.

Accordingly, one skilled in the art would be guided by Khalsa teaching a breathing cycle including an inhalation phase and an exhalation phase with a pause of 10-30 seconds, yielding a breathing cycle similar to that of Schreiber.

Additionally, Bernardi et al., as cited and admitted by the Patent Office, teaches a breathing cycle that lasts for approximately 10 seconds. (See Office Action mailed August 22, 2006, page 10). Therefore, the combination of references cited by the Patent Office would lead one skilled in the art at the time of the invention to believe that Bourne teaches a breathing cycle period that is either higher or lower than Applicant's claimed period of 11.76 seconds.

Further, Bourne does not even recognize the existence of a heart rate variability cycle. Additionally, Bourne provides absolutely no teaching of synchronizing the breathing cycle with the heart rate variability cycle to achieve coherence of the heart rate variability cycle, as required by claim 1.

Accordingly, Bourne does not anticipate claim 1 and the rejection of claim 1 should be withdrawn for at least these reasons. Claims 2 and 18 depend from claim 1 and the rejection of these claims should also be withdrawn for at least the same reasons. Applicant respectfully submits that claims 1, 2, and 18 are in condition for allowance and notice of the same is requested at the earliest possible date.

Claims 1 and 10-12 were rejected under 35 U.S.C. § 102(b) as being anticipated by Khalsa. Applicant respectfully traverses. The standards for anticipation are set forth above.

Based upon the discussion of Khalsa above, Khalsa does not anticipate claim 1 and the rejection of claim 1 should be withdrawn for at least these reasons. Claims 2 and 18 depend from claim 1 and the rejection of these claims should also be withdrawn for at least the same reasons. Applicant respectfully submits that claims 1, 2, and 18 are in condition for allowance and notice of the same is requested at the earliest possible date.

Claim 14 was rejected under 35 U.S.C. § 103(a) as being unpatentable over Schreiber in view of U.S. Patent No. 1,953,954 to Constable (hereinafter "Constable"). Applicant respectfully traverses. For the Patent Office to combine references in an obviousness rejection, the Patent Office must do two things. First, the Patent Office must establish *prima facie* obviousness by showing where each and every element is taught or suggested in the combined references. MPEP § 2143.03. Second, the Patent Office must state a motivation to combine the

references. The motivation must be supported with actual evidence which cannot come from Applicant's disclosure. *In re Dembiczak*, 175 F.3d 994, 999 (Fed. Cir. 1999).

Claim 14 depends from claim 1 and is allowable for at least the same reasons as discussed above for claim 1. Constable does not cure the deficiencies of Schreiber with respect to claim 1. Accordingly, Applicant respectfully submits that claim 14 is in condition for allowance and notice of the same is requested at the earliest possible date.

Claims 1 and 7 were rejected under 35 U.S.C. § 103(a) as being unpatentable over UK Patent No. GB 2381642A to Ashman (hereinafter "Ashman") in view of U.S. Patent No. 6,397,106 B1 to DeBrouse (hereinafter "DeBrouse"). Applicant respectfully traverses. The standards for obviousness are set forth above.

The combination of Ashman and DeBrouse does not teach Applicant's claim 1. As discussed above, claim 1 recite "a period for a combination of the inhalation phases and exhalation phases having a center frequency of approximately 11.76 seconds, wherein the period having the center frequency of approximately 11.76 seconds represents a nominal heart rate variability cycle . . ." Furthermore, Bernardi et al., as admitted by the Patent Office, teaches a breathing cycle that lasts for approximately 10 seconds. (See Office Action mailed August 22, 2006, page 10).

The Patent Office has indicated in the Office Action mailed August 22, 2006, that "the examiner felt that the applicant did not give sufficient reason for the specific duration of each induced breathing cycle." (See Office Action mailed August 22, 2006, page 10). Applicant has further amended claim 1 to recite that the human is instructed to align the breathing cycle with at least one of the indicators operating within the combined period for the inhalation and exhalation phases having a center frequency of 11.76 seconds "to synchronize the breathing cycle with the heart rate variability cycle to achieve coherence of the heart rate variability cycle." Accordingly, Applicant has identified the reason for the specific duration of each induced breathing cycle.

Neither Ashman nor DeBrouse, alone or in combination, teach synchronizing the breathing cycle with the heart rate variability cycle to achieve coherence of the heart rate variability cycle where the breathing cycle is bounded by a period having a center frequency of 11.76 seconds.

Accordingly, the rejection of claim 1 should be withdrawn. Claim 7 depends from claim 1 and the rejection of claim 7 should also be withdrawn for at least the same reasons. Applicant

respectfully submits that claims 1 and 7 are in condition for allowance and notice of the same is requested at the earliest possible date.

Conclusion

The present application is now in condition for allowance and such action is respectfully requested. The Examiner is encouraged to contact Applicant's representative regarding any remaining issues in an effort to expedite allowance and issuance of the present application.

Respectfully submitted,

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